State Soil Scientist Meeting
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“Notes from the Underground”

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"Notes from the Underground"

Information Technology

1. NRCS Information Technology 5 year Investment Strategy—Jack Carlson, NRCS Chief Information Officer (CIO)
2. Migration of data to Enterprise Data Centers (EDC)
3. Federal Desktop Core Configuration (FDCC)

"The United States Department of Agriculture and other Federal Government networks are at a significant risk of infiltration from nations or other entities that do not have the same domestic or international goals of the United States. These entities use the most educated individuals in the world with sophisticated technology tools to achieve their goals. If a predator posing as a legitimate user gains access to a USDA network, they could potentially gain access to other Federal Government networks which also contain classified or highly sensitive information."

Top Priorities for the Information Technology Service

- Security
- Security
- Security
- Security

1. NRCS Information Technology Five-Year Investment Strategy

Seven Trends

1. Ubiquitous broadband wireless
2. Employee provisioned, not the office
3. Seat management
4. Thin client
5. Cloud computing
6. Plain vanilla COTS
7. Security throughout the network

1. Broadband Wireless

- Wireless in offices (replacing cable)
- Broadband wireless (CCE Verizon cards)
- Higher speed wireless (Wi-Max, LTE)

2. Provision the Employee, not the Office

- Little to no hardware deployed in office
- Employee is provisioned computing device and connection to the network (e.g. Sun Microsystems)

3. Seat Management

- NRCS pays an annual seat cost for each employee and partner working inside the network
- Seat provides hardware and software as a service (we still buy computers)
- Software refresh cost included in the seat cost
- Technical support (“house calls”) are the biggest expense
- Thin client will drive cost down

4. Thin-Client

- No hard drive and processing capability
- Connects to the network (wireless??)
- The network is the computer
- Security concerns and today's high support costs drive this change
- Adoption depends on reliability of the network
- Broadband wireless will accelerate use of thin-client

5. Cloud Computing (Grid Computing)

- A computing cloud is capacity at a data center for hosting business applications
- Agencies acquire capacity as they need it and do not worry about what's in the cloud
- Moves from "rubbing the belly" of the server to paying for computing capacity as a service
- Servers are virtual, several can exist on a physical machine

6. Plain Vanilla COTS

- The heyday of custom applications probably is over
- Agencies will subscribe to applications as a service
- Agencies owning applications will buy COTS (commercial off-the-shelf) products and use them mostly as-is
- The good enough philosophy
- CRM software licensing is a step in this direction

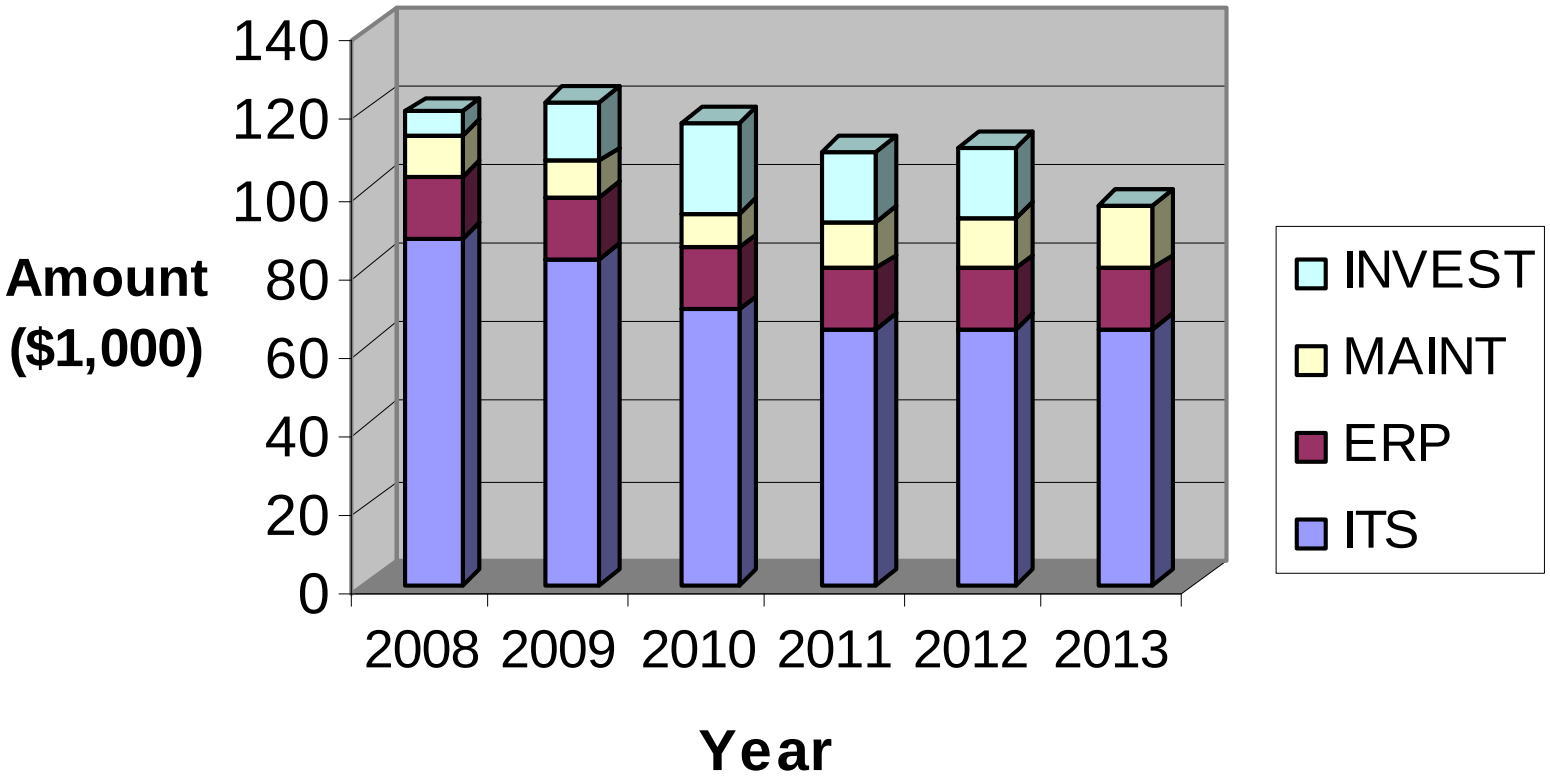
7. Security Throughout the Network

- USDA has a F grade in security and a material weakness in financial systems
- Today security is focused at the perimeter of the network
- Tomorrow security will be applied throughout the network using what is called network admission control (NAC) software

USDA Enterprise Resource Planning (ERP)

- ERP applications support human resources, financial, asset management, and supply chain business processes
- Includes EmpowHR, Integrated Acquisition System, AgLearn, and the other ERP-type applications
- Intention is to activity engage with the Department to improve and better integrate these applications

Projected IT Investment 2009-2013



2. Migration of data to Enterprise Data Centers (EDC)

- Office of Management and Budget (OMB) mandate
  - Agencies will move mission critical, financial, disaster support systems as well as sensitive or personally identifiable information to a USDA data centers by July 4, 2009
  - Not authorized to build new or maintain current locations that house network equipment
  - Intent is to use up USDA floor space, then acquire service from commercial providers that meet security protocols

3. Federal Desktop Core Configuration (FDCC)

- OMB mandate
  - Federal Agencies standardize the configuration of about 300 settings on Windows XP/Vista
  - Strengthens Federal IT security
  - Begins on February 8 (12 character p/w, aging 60 days)
  - No administrative privileges
  - All wireless interfaces should be disabled
  - Waiver requests will have to be strongly documented

Natural Resource Data Services

- Today's soil data services establishes the model for this consolidated application
- NRCS provisions a soil data mart with authoritative data and build web services to access the data inside and outside the agency
- Model will be applied to plant, water and climate, and other NRCS data marts
- The NRCS role within USDA will be more focused and guided by the consolidated geospatial business case

Technology for the Soil Survey

National Geospatial Development Center
National Soil Survey Center
National Cartography and Geospatial Center
National Employee Development Center
Information Technology Center
Information Technology Service
NCSS Cooperators (FS, NPS, BLM, University and International Research Community)
Private Sector (contract programmers)
MLRA Regional Office Staff
MLRA Soil Survey Staff

Remote Sensing Curriculum (ERDAS Imagine)

- Web based Introduction to Photo Interpretation (multi-disciplinary approach to development)

  -analogue has not been taught for many years

- Introduction to Remote Sensing (recently revised)

  -Self-paced “Bridge” to the IRFS (hands-on ERDAS Imagine)

- Remote Sensing for Soil Survey Applications (newly developed)

Remote Sensing Curriculum

- Remote Sensing for Conservation & Wetland (WRP) Compliance
- Remote Sensing for NRI

Hydropedology Curriculum (Field measurement of Ksat)

Part of the Research Agenda

Agreed upon Methods/procedures/protocols for measurement

Instrumentation options

Field Training course (workshops, NEDC sponsored)

Natural Resource Information System (future)

National Soil Geodatabase (NSGD)

(check out/check in)

Soil Survey Data (NRCS, BLM, FS)

Ecological Site Data

Plant, water, climate

Dynamic Soil Properties

Raster Soil Information

Content Management (images, manuscript text, open file system, etc)

Soil Survey Schedule

Decision Support System for generating interpretations